19990318.ba v02_n468.bam.990318

>From ???@??? Fri Mar 19 05:59:28 1999
Message-Id: <199903181129.FAA27187@sco.theporch.com>
Date: Thu, 18 Mar 1999 05:28:44 CST
From: Old Tube Radios <boatanchors@theporch.com>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: BOATANCHORS digest 2468

BOATANCHORS Digest 2468

Topics covered in this issue include:

Date: Wed, 17 Mar 1999 12:54:41 -0700 (MST)
From: Richard Loken <richardlo@devax.admin.athabascau.ca>
Subject: Re: BA Quality versus SS Quality
To: Old Tube Radios <boatanchors@theporch.com>
Cc: Old Tube Radios <boatanchors@theporch.com>
Message-id:
 <Pine.PMDF.3.95.990317125035.541114492B-100000@devax.admin.athabascau.ca>
MIME-version: 1.0
Content-type: TEXT/PLAIN; charset=US-ASCII

On Wed, 17 Mar 1999, Avery Comarow wrote:

> Barry, Ben, others--Sounds logical. So explain something I've found
> puzzling for years: the absence of digital readouts on inexpensive table
> radios, clock radios, boom boxes, etc. I assume, if incorrectly, that by
> now it would be cheaper to include a digital display than a mechanically
> driven analog dial with variable caps, etc. Am I all wet?

There is cheaper and cheaper and if you can take cheap parts to an area with
very cheap labour then you can have both. You will notice that those bottom
of the line consumer products are no longer made in Japan, Taiwan, or Korea
but instead in The People's Republic of China or some other third world
country with nearly free labour.

The Japanese used to employ teenage girls to build consumer radios because
they had the small nimble fingers needed to get the parts in. I wonder if that
is still true in China.

   Richard Loken VE6BSV, Systems Programmer - VMS
   Athabasca University
   Athabasca, Alberta Canada
   ** richardlo@admin.athabascau.ca **

Message-Id: <199903171955.OAA34506@ns5-1.CC.Lehigh.EDU>
Date: Wed, 17 Mar 1999 14:55:10 EST
From: ail0@lehigh.edu (ARTHUR I. LARKY)
Subject: Re: Point-to-Point versus Printed Circuits
To: Old Tube Radios <boatanchors@theporch.com>
CC: <ail0@lehigh.edu>, "Old Tube Radios" <boatanchors@theporch.com>
Cc: <ail0@larky.com>

Mike,

>To assign a probability of failure implies that the item worked at one time
>and one wants to have an idea how long it will continue to work. If a wire
>is left out the item never worked so the term would not apply. As you said
>all components and interconnections had, and still do, for estimating
>purposes, a failure rate assigned to them mostly based on empirical data.
>Failure rate is typically measured as the number of occurrences per million
>hours. The numbers vary depending on the environment and physical abuse the
>item is subjected to. Interconnections typically had, and still have, a high
>failure rate, and since there were usually a lot of them in a system, they
>usually drove the Mean Time Between Failures (MTBF) numbers. Anyway just
>wanted to point out that you cannot assign a failure rate probability to
>something that is not there.

The Minuteman idea was to discourage the use of high-failure rate components buy assigning a maximum failure rate to the design. The question is "should I, or should I not, use this component?" In this case, failure rate applies to the whole process from assembly to field use.
Art K3HBA

Content-return: allowed
Date: Wed, 17 Mar 1999 15:09:24 -0500
From: "Katz, Gene S" <gene.s.katz@lmco.com>
Subject: RE: BA Quality versus SS Quality
To: Old Tube Radios <boatanchors@theporch.com>
Cc: Old Tube Radios <boatanchors@theporch.com>
Message-id: <40D23851A09ED211B3430000F8081AD07509C4@emss04m16.ems.lmco.com>
MIME-version: 1.0
Content-type: text/plain

Have you looked at a modern GE or RCA consumer electronic item recently? Parts made in one third world country, assembled in a second third world country, transshipped to Mexico (where you return it for warranty repair/replacement, sold in America. Thanks NAFTA, we really needed that. The GE and RCA logo rights are owned by a French conglomerate, Thomsen. The trouble is I earn my living in the States. Why do I have to buy foreign owned and made products with my US earned dollar? Answer: PROFIT, PROFIT, and more PROFIT. For everybody except the laid off and discharged workers from the former GE and RCA plants. The RCA Tube Division in Harrison, NJ shut down so that we now must buy Russian, Chinese, Czech tubes? Some one at a hamfest recently told me that an arm of the US bureaucracy actively promoted foreign made tube manufacturers, even to the point of financial incentives. I hope he was wrong.

Gene KC6BLD

Message-ID: <36F00DE7.1EEF7941@corn.cso.niu.edu>

Date: Wed, 17 Mar 1999 14:17:43 -0600
From: Steve Berg <z931086@corn.cso.niu.edu>
MIME-Version: 1.0
To: Old Tube Radios <boatanchors@theporch.com>
CC: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: BA Quality versus SS Quality
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit

In an article in a past Chicago Tribune, the story of how Richardson Electronics was forced to end tube manufacturing was told in some detail. Richardson had been buying up tube manufacturing lines and equipment as other manufacturers went out of the business. They produced some tubes in nearby LaFox, Illinois, and had also set up a new factory in France. Somebody in the Bush Administration noticed that Richardson had cornered the market on an essential technology, vacuum tubes, and initiated anti-trust action against the company. Richardson was forced to divest itself of most of its manufacturing capability. This is yet another example of the stupidity of government anti-trust activity. It also shows that the Republicans are only selectively pro-business.

Steve WA9JML

Message-ID: <36EF62B3.B94F6627@gil.com.au>
Date: Wed, 17 Mar 1999 18:07:15 +1000
From: David Prince <davprin@gil.com.au>
MIME-Version: 1.0
To: Old Tube Radios <boatanchors@theporch.com>
Subject: TU-53 - What Transmitter?
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit

G'day All,
Picked one of these up at an esrate sale on the weekend. Can anyone tell me what Tx it belongs to. Appears to be stainless steel unpainted, 9" high by 1 3/4" wide with a finger hole top and bottom to remove it other equipment. It cover 8 to 12 Mc/s. Controls are (from top down) INT. AMP, DOUB, Smaller knob with flange calibrated 0 to 100 with a locking clamp, toggle switch MO/XTAL, and at the bottom, a Xtal socket. Rear has two male connectors, one 4-pin and the other 8-pin. Has a serial #3702 and in smaller figures 51A488. No ID plate has been fitted. Looks like a rubber stamp with black ink stating TYPE TU-53.

Any help would be greatly appreciated. Cheers,

--

Dave Prince VK4KDP
Ipswich, Queensland, Australia
davprin@gil.com.au
http://www.home.gil.com.au/~davprin

Message-Id: <199903172323.SAA03620@flash.naxs.net>
From: "Barry L. Ornitz" <ornitz@tricon.net>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: BA Quality versus SS Quality
Date: Wed, 17 Mar 1999 18:21:55 -0500

Avery Comarow, W4OGK asked:

>Barry, Ben, others--Sounds logical. So explain something I've found
>puzzling for years: the absence of digital readouts on inexpensive table
>radios, clock radios, boom boxes, etc. I assume, if incorrectly, that by
>now it would be cheaper to include a digital display than a mechanically
>driven analog dial with variable caps, etc. Am I all wet?

No, just moist!   :-)

A printed circuit board mounted tuning capacitor with an uncalibrated (or minimally calibrated) mechanical dial is still cheaper than a frequency counter or a synthesizer. Move up one small level in performance, like the standard factory supplied radio in new cars, and they become all digital. Keypads are not very expensive but the price goes up rapidly with the number of buttons. Look at the VCR controls that no one older than a teenager can figure out. Three buttons to do everything.
The cost of a crystal, a display, and either a counter or synthesizer is a few dollars. That board mounted capacitor is less than a dollar.

I shudder to think what the cost of the RF deck in an R-390A would be today...

        73, Barry L. Ornitz   WA4VZQ   ornitz@tricon.net

Message-Id: <3.0.5.32.19990317183647.008dc6f0@pop.pipeline.com>
Date: Wed, 17 Mar 1999 18:36:47 +0000
To: Old Tube Radios <boatanchors@theporch.com>
From: "Lawrence R. Ware" <lrware@pipeline.com>
Subject: B&W 5100 transmitter
Mime-Version: 1.0
Content-Type: text/plain; charset="us-ascii"

good evening filament fans!
Today a quite restorable old B&W 5100 (no suffix) caused me to
stub my toe whilst searching in a junk pile for another National.
It then managed to sneak into the back of my vehicle and ended up
at home with me... :-)
(Honest honey, I don't know how that darn old thing got here.... :-)
With two 6146's for finals, and two more for modulation I suspect it
could sound pretty good on AM once fixed up. Thus tonights request:
Any one have a manual for this poor forlorn BA?
Decent photocopy is fine, will be happy to pay copy, postage, and nuisance
costs. :-)
Thanks
-Larry

Larry Ware, a National Coil-Catacomb nut.
Admirer, Collector, Restorer of National Radio Company
receivers and other artifacts.
Orlando, Florida
lrware@pipeline.com

Date: Wed, 17 Mar 1999 16:00:46 -0800
From: Arden Allen <gumbear@pacbell.net>
Subject: Re: BA Quality versus SS Quality
To: Old Tube Radios <boatanchors@theporch.com>
Message-id: <0F8R00MTJJZRYE@mta3.snfc21.pbi.net>
MIME-version: 1.0
Content-type: text/plain; charset=ISO-8859-1
Content-transfer-encoding: 7bit

> Hi Ben;
>
> > ......
> > I think Arden and others have missed one big point in comparing the
> electronics
> > of old with the electronics of today: Price.
> > ....
>
> I think YOU are the one who missed my point. My point is, technology
used
> to develop at a pace that made sense to consumers. Performance and
quality
> constantly improved. What you bought, if properly cared for and
maintained
> could have a very long service life and be well supported by service
> merchants and replacement parts. Now, what you get is stuff that would
be

> VERY reliable (without regard to price comparison of what it cost of a
> weeks wages to buy) if the DESIGN was decent. But stuff TODAY, for a
large
> part (not everything is this way) operates poorly for what it is intended
> to do, cannot be fixed at a local shop, and repair parts and service
> evaporate in only a few years if that much. So what's improved? You pay
> less so you can be guaranteed to be screwed more often instead of getting
> something you can enjoy for a long time if you care to. That's my point.
>
> Arden Allen   KB6NAX   Vallejo, CA   gumbear@pacbell.net
>
> PS: Today's consumer electronics is BUTT UGLY!

Message-Id: <3.0.3.32.19990317185833.00b6b000@mindspring.com>
Date: Wed, 17 Mar 1999 18:58:33 -0500
To: Old Tube Radios <boatanchors@theporch.com>
From: john <johnmb@mindspring.com>
Subject: Ahoy ... BA folk in the UK
Mime-Version: 1.0
Content-Type: text/plain; charset="us-ascii"

I've been contacted by a website visitor who's looking
for a home for a collection of (nice) BA gear that's part
of an estate. They dont want to see it go to the dump,
and neither do I (I guess that would be "the tip"?).

Anyway, if you're in the : Wyton
              Huntingdon
              Cambridgeshire
 area, or can get there, write me and I'll forward
you the information.

My only interest in this is trying to get this gear to
good homes.

73
/John

+---
| John Brewer- WB5OAU/4
| AMI #24   Vintage Radio Website
| http://www.mindspring.com/~johnmb/
+---

Message-Id: <199903180008.TAA09888@flash.naxs.net>

From: "Barry L. Ornitz" <ornitz@tricon.net>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: Contact/potentiometer Cleaning
Date: Wed, 17 Mar 1999 19:07:21 -0500

Sorry to disagree with you about who is ripping off the name, Hank.

>Unless a Radio Schlock store is carrying the Caig product, no. GC
>(formerly General Cement) is also selling a wannabe product called
>"De-ox-id" (for shame! Most of their stuff is pretty good).

The De-ox-id product was around in the mid-1980's with toxicity data being generated as early as 1981. The Caig DeoxIT dates to the mid-1990's. At least these are the dates filed for MSDS information.

Like many similar formulations, these products have changed over the years (mainly because of ingredients being banned). They are basically a light mineral oil in a solvent with a few "special" additives. In De-ox-id these are lecithin, camphor oil, and methyl salicylate. The lecithin is the antioxidant; the camphor retards evaporation, and the "oil of wintergreen" makes it smell nice.
Where Freon TF was once the preferred solvent, it is now generally a mixture of light naphtha and chlorinated hydrocarbons.

Yesterday's comments on these cleaners by me can be summarized as: they will never replace proper cleaning and lubrication with "elbow grease" and patience. A quick squirt may help for a short while, but excessive use can make matters worse.

    73, Barry   WA4VZQ   ornitz@tricon.net

Message-Id: <199903180017.TAA11046@flash.naxs.net>
From: "Barry L. Ornitz" <ornitz@tricon.net>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: Vacuum tubes in Space
Date: Wed, 17 Mar 1999 19:16:19 -0500

Chuck Swiger, KB4NEW, asked:

>Well, this is a fecious question, but why NOT vacuum tubes in space,
>space being a vacuum   :))   Any ideas on the differences between,
>say, a space shuttle orbit level vacuum and that in a 12AT7 or 5R4,
>other than the obvious use of gasses. Could one make an amplifier
>in space with elements sticking out and no glass envelope?

The vacuum in a typical "modern" receiving tube is one to two orders better

than that of near-earth orbit. In transmitting tubes, the vacuum is better still. In orbit, an improved vacuum can be obtained by using a several hundred meter diameter disk moving directly in front of where the vacuum is needed. The disk will sweep away gas molecules leaving a better vacuum behind. The large size is needed to keep the rate of diffusion back into the improved vacuum region down.

Gassy tubes can still show amplification, so the concept of unenclosed tubes is not impossible.

        73, Barry   WA4VZQ   ornitz@tricon.net

Message-ID: <36F04253.6812A477@idirect.com>
Date: Wed, 17 Mar 1999 19:01:24 -0500
From: Jerry Proc <jproc@idirect.com>
MIME-Version: 1.0
To: Old Tube Radios <boatanchors@theporch.com>
CC: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: BA Quality versus SS Quality
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit

"Barry L. Ornitz" wrote:

>
> I shudder to think what the cost of the RF deck in an R-390A would be
> today...
>
>   73, Barry L. Ornitz   WA4VZQ   ornitz@tricon.net

Hi Barry,

Seems I remember that in 1989, there was a requirement to built a small batch of R390's (about 5 or 10 units) to satisfy some existing US government contract requirement. The cost at that time was estimated around $20,000 per unit.

In comparing the costs of electronics then and now, one good measurement is : How many hours of work did it take to purchase a piece of equipment back then compared to today? When you do the comparison, you will find it took several hundred hours of "working" to purchase a television set to only scores of hours today for something nearly equivalent. If advances in electronics and manufacturing had not taken place, I would estimate that a 21 inch B&W tube television costing aorund $300 (in mid 1950's pricing) would cost around $2,000 - $3,000 today.

--

Regards,
Jerry Proc VE3FAB   jproc@idirect.com
Web: www3.sympatico.ca/hrc/haida
HMCS HAIDA Historic Naval Ship, Toronto Ontario

Message-ID: <36F04F70.72E2F7E0@connix.com>
Date: Wed, 17 Mar 1999 19:57:20 -0500
From: "P. J. *Josh* Rovero" <provero@connix.com>
MIME-Version: 1.0
To: Old Tube Radios <boatanchors@theporch.com>
CC: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: BA Quality versus SS Quality
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit

Jerry Proc wrote:
>
>
> In comparing the costs of electronics then and now, one good measurement is :
> How many hours of work did it take to purchase a piece of equipment back then
> compared to today? When you do the comparison, you will find it took several
> hundred hours of "working" to purchase a television set to only scores of hours
> today for something nearly equivalent. If advances in electronics and
> manufacturing had not taken place, I would estimate that a 21 inch B&W tube
> television costing aorund $300 (in mid 1950's pricing) would cost around $2,000
> - $3,000 today.
>

NASA's GDP inflator/deflator is also helpful. There is a link to
it on my SP210/BC779 page.

--
P. J. "Josh" Rovero   email: provero@connix.com
Oceanographer   work: rovero@sonalysts.com
Meteorologist   radio: KK1D
Curmudgeon at Large   web: http://www.connix.com/~provero/

Date: Wed, 17 Mar 1999 16:59:16 -0800
From: Arden Allen <gumbear@pacbell.net>
Subject: Re: BA Quality versus SS Quality

To: Old Tube Radios <boatanchors@theporch.com>
Cc: Old Tube Radios <boatanchors@theporch.com>
Message-id: <0F8R00491MP8D5@mta3.snfc21.pbi.net>
MIME-version: 1.0
Content-type: text/plain; charset=ISO-8859-1
Content-transfer-encoding: 7bit

Hi Jerry;

> In comparing the costs of electronics then and now, one good measurement
is :
> How many hours of work did it take to purchase a piece of equipment back
then
> compared to today? When you do the comparison, you will find it took
several
> hundred hours of "working" to purchase a television set to only scores of
hours
> today for something nearly equivalent. If advances in electronics and
> manufacturing had not taken place, I would estimate that a 21 inch B&W
tube
> television costing aorund $300 (in mid 1950's pricing) would cost around
$2,000
> - $3,000 today.

Roughly, it would take 40 hours on the job to buy a $300 TV today and about 400 hours (or more) to buy a set in the 50's. Sets HAD to last longer then but didn't, they needed to be serviced much sooner than today's TV's. BUT, the irony is, I still have my working 1965 RCA B&W, I've fixed it three times. My former hybrid Sharp finally died after 12 years of faithful service with only a couple of changes of the horizontal output tube. My new 5 year old Sharp is giving hints of impending alzheimer's having never been serviced, will anyone be able to fix it?

Arden Allen   KB6NAX   Vallejo, CA   gumbear@pacbell.net

Message-ID: <001901be70e7$a0a3d3c0$083129d8@blah>
From: "Richard" <rbrunner@gis.net>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: Multiple Entries, etc.
Date: Wed, 17 Mar 1999 21:21:55 -0500
MIME-Version: 1.0
Content-Type: text/plain;
     charset="iso-8859-1"
Content-Transfer-Encoding: 7bit

3D22 Tube: Is a tetrode gas thyratron rectifier, short T16 bulb, giant 7

pin base, heater 6.3 V @ 2.6 A. 1350 V piv, 750 Ma. The 3D22A is uprated to 1500 V, 800 Ma.
Source: "Tube Lore" by Ludwell Sibley

SW-3 Coil Forms: Are available from James A. Fred, Rt1, Box 41, Cutler IN 46920
I think I paid $7.50 each about 2 years ago.

New query: Does anyone have the operating voltage for a 991 regulator? It is a bayonet based neon lamp which was sold as a voltage regulator circa 1940-1950 I think.

TNX
Richard Brunner, AA1P, rbrunner@gis.net

Message-ID: <36F06B9D.769CA456@bw.webex.net>
Date: Wed, 17 Mar 1999 21:57:33 -0500
From: Al Klase <skywaves@bw.webex.net>
MIME-Version: 1.0
To: Old Tube Radios <boatanchors@theporch.com>
CC: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: Multiple Entries, etc.
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit

Richard wrote:
>
> 3D22 Tube: Is a tetrode gas thyratron rectifier, short T16 bulb, giant 7
> pin base, heater 6.3 V @ 2.6 A. 1350 V piv, 750 Ma. The 3D22A is uprated
> to 1500 V, 800 Ma.
> Source: "Tube Lore" by Ludwell Sibley ....
>
> New query: Does anyone have the operating voltage for a 991 regulator? It
> is a bayonet based neon lamp which was sold as a voltage regulator circa
> 1940-1950 I think.
>

....specially labled NE16 .... 48-68 V, 0.4-2ma....

Tube Lore strikes again!

73, Al

--
Al Klase - N3FRQ

skywaves@bw.webex.net
Flemington, NJ 08822
Web Page: http://www.webex.net/~skywaves/home.htm

To: Old Tube Radios <boatanchors@theporch.com>
Cc: boatanchors@theporch.com
Date: Thu, 18 Mar 1999 02:03:08 -0600
Subject: Re: Multiple Entries, etc.
Message-ID: <19990318.023811.11286.0.jackiv@juno.com>
From: John M Iverson <jackiv@juno.com>

991 neon reg. approx 90 v.
Jack Iverson   K0EWU   jackiv@juno.com
ARRL, IEEE LM, RCA, AMI, ARCI, QCWA

Message-ID: <36F0D7E8.5814@earthlink.net>
Date: Thu, 18 Mar 1999 02:40:43 -0800
From: "Don L. Davis" <dxguy@earthlink.net>
MIME-Version: 1.0
To: Old Tube Radios <boatanchors@theporch.com>
Subject: Failure Rates And Components
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit

Art says:

"The Minuteman idea was to discourage the use of high-failure rate
components
buy assigning a maximum failure rate to the design. The question is
"should
I, or should I not, use this component?" In this case, failure rate
applies
to the whole process from assembly to field use."

Well.... sort of. Let me give my understanding of reliability
engineering from a 25 year experience in this business.

When the military buys a system (any system, of any kind) they postulate
the operating lifetime and then state the probablility of the system
working under worst-case specified conditions. So, a Minuteman System
(place emphasis on system, not an individual missile) consisting of

missiles, launchers, control sites, personnel, etc should have a high probability of performing it's end mission at end-of-life under worst case conditions. This is specified by the program managers. Each missile would also need to have it's MTBF (mean time between failure) included in this system calculation. This figure is supplied to the contractor, and is inviolable. A typical commercial space system might have an overall reliability of 0.7 to 0.9 depending upon the cost of the system; military systems are higher than commercial. The contractor would be free to use whatever parts (and quantity) as long as they are properly de-rated over the lifetime (per MIL HDBK specified), and listed in the appropriate QPL, QML or Master List. Typically MIL-883 class B for missiles and higher grades for space applications.

Once the design is in place, then the MTBF is calculated. This is usually done per MIL-HDBK-217E (or F, but often not, due to problems in the latest revision) or another approved reliability handbook. Each part class & type is assigned a failure rate, and then these are added per methods in the HDBK. LSI ICs have the highest failure rates, followed by MSI, SSI, power transistors, etc. Film resistors, wires, PWB traces, connectors, etc usually make a very tiny contribution to the overall failure rate. In addition, FMEA (Failure Mode Evaluation & Analysis) is performed to ensure no unsafe practices or operation is attendant, and that no single-point failures are present, and that proper redundancy management is employed.

These analyses and designs are presented to the customer for approval, and either accepted or rejected. Then re-design begins. The idea of quality maufacturing is embedded into all gov't contracts with numerous compliance documents involved. This ensures (or is supposed to) that the units will be built to proper, accepted procedures, and that errors, test results, and fabrication/assembly details are fully documented and disclosed. This is how workmanship qulity is ensured, and has nothing whatever to do with reliability calculations. Final testing of these units consists of evironmental screening (vibration, shock, temperature, acoustics, radiation, etc) and life-test and/or burn-in cycling to expose infant mortality, latent defects, and workmanship issues.

I hope this sheds some light on reliability of electronic hardware (military/space at least). Most of the above should be very familiar to the systems and lead design engineers on the list, but may seem a bit strange to others not involved in hi-rel design work. I'll be happy to discuss any of this off the list, as I fear I am way off topic.

BA content: TWTs (travelling wave tubes) are still used widely in space due to their high power output (compared with SS amps). The manuals don't list any failure rates for these. Failure rates are so high, that they wind up being a negotiated item in nearly every contract and frequently 4 or 5 will be flown to ensure operation of at least one

unit after 5 - 10 years. I also understand that the Russians used tubes widely until farily recently, and might be using them for certain applications today.

73

Don Davis

Date: Thu, 18 Mar 1999 05:28:32 -0600 (CST)
From: Kevin Pease <hamradio@mm1001.theporch.com>
To: Old Tube Radios <boatanchors@theporch.com>
cc: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: S20R--The problem is tracking, but....
Message-ID: <Pine.LNX.3.96.990318051708.25387B-100000@mm1001.theporch.com>
MIME-Version: 1.0
Content-Type: TEXT/PLAIN; charset=US-ASCII

On Wed, 17 Mar 1999, A. B. Bonds wrote:

> So, say the alert of you, a simple matter of getting the oscillator to
> match the dial. Well, it won't. When set properly for 1400 kc, the dial
> has to be put at about 500 kc when it picks up 600 kc from the generator
> (with the low end padder turned all the way in). Since the RF stages are
> tuned to 600 kc (on the dial), there is lousy sensitivity. I have tried
> all manner of combinations of trimmer and padder settings to no avail.
> Note that the trimmer is a 20-50 pf mica and the padder is a "430 pf" mica,
> which actually reads 520 pf when dead tight. Neither leaks at high
> voltage. I tried paralleling an additional 56 pf onto the padder, to no
> avail. One of the problems here is that the padder shunts the bottom of
> the coil (which feeds the grid) to ground, so as we add more capacitance,
> the oscillator amplitude drops.
>
You have too much capacitance in the padder. The padder is in the circuit to reduce the capacitance of the oscilator section of the tuneing capacitor. Yor oscilator at 600 kc is set to 500kc+the IF offset. You need it set to 600kc+if offset. The capacitor is set too tight resulting in an oscilator frequency that is too low. To align that rx on the bcb you adjust the padder to get 600 kc and the trimmer for 1400 kc. What you are setting is the tracking for that oscilator. Since the oscilator is above the frequency of the rx signal by aprox 455 kc it needs les total capacitance for the varriable capacitor hence the padder which is efectively in series with the main tuneing capacitor reduceing its total capacitance.

If you reduce the value of the padder so that 600 kc works and then adjust the trimmer at 1400 kc so that it works and repeat the process many times you should be able to get the whole thing to track.

Be careful that at 1400 kc the oscilator is a 1400kc+the if freq not 1400 kc - the if frequency.

Your problem ic caused by the padder being too tight. Someone has improperly aligned that rx getting it badly out of track hence the time consuming task you face of putting it back.

When you added the 56 pf capacitor you actually made the main tuneing cap seem higher in value which actually lowered the frequency at 500 kc below the 500 kc that you had.

I hope that the above is not too confusing. The most important thing to remember is padder at low end of band and trimmer at high end of band. A freq counter on the oscilarot would be helpfull. Adjust the oscilator for the dial frequency + the IF frequency and keep going back and forth until you get the correct frequency at each end of the range.

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End of BOATANCHORS Digest 2468
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